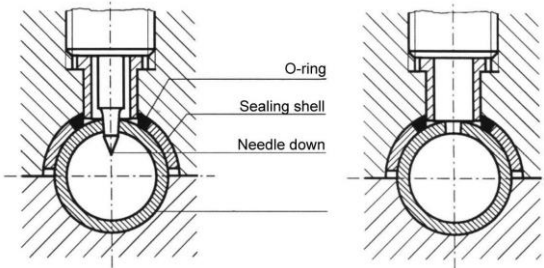
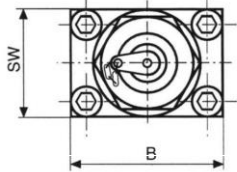
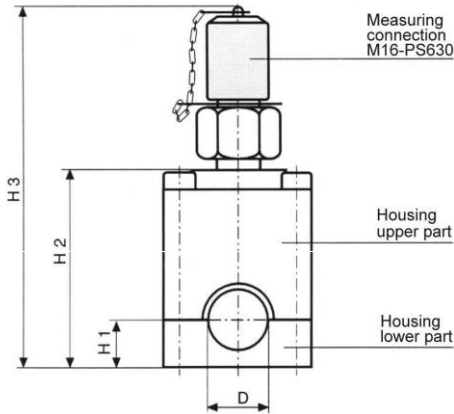
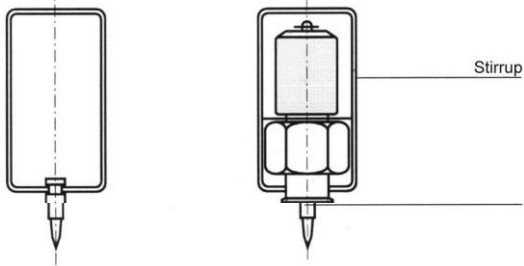


serv-Clip -2 for mounting on non-pressurized pipes

Stirrup and needle are removed after screwing



- ◆ Quick and cheap installation of approx. 3 minutes with the help of an Allen wrench 6 mm and jaw wrench SW 22.
- ◆ No need to cut pipes
- ◆ Minimized downtime -installation on non pressurized pipes
- ◆ No contamination of the fluid through swarfs
- ◆ Installation of gauges and sensors with screw 3/8"
- ◆ Included valve M 16x2
- ◆ For use up to 630 bar (9100 psi) working pressure
- ◆ Particle measurement according to ISO or NAS classes
- ◆ **serv-Clip** is registered trade mark of Bolender-Germany

Description

The patented measuring connector sc-2-A... has been developed for mounting to pressureless hydraulic tubes. Following installation, the measuring connector is capable of permanent use for a working pressure of 630 bar (9100 psi). The measuring connector sc-2-A... is supplied in a pre-assembled state with measuring connector and needle. Screwing in the measuring connector presses a special-shaped needle through the wall of the tube. Afterwards the measuring connector is screwed out and the needle removed along with the stirrup and a pressure disk. The measuring connector is now screwed back into the serv-Clip. The measuring point is now sealed off and permanent pressure can be applied up to 630 bar (9100 psi). This connection is quick and simple to make and is also reliable. The whole process takes only a few minutes to complete. No special tools are required for mounting the serv-Clip. The system is fully sealed off. Contamination of the hydraulic fluid is ruled out. The operating reliability of the system remains intact. The measuring point is now permanently available for measurements.

Materials

Housing	9SMnPb28k	Sealing shell	St 37.4
O-ring	Viton	Measuring-needle	58CrV4

Dimensions

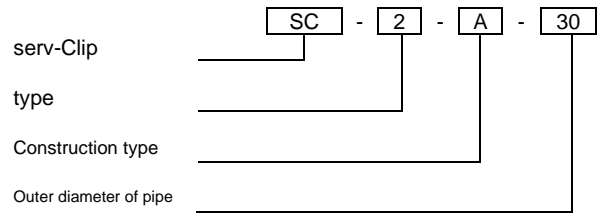
OD mm	Type mm (A)	H1	H2	H3	B	SW
10 - L + S	SC-2-A-10	15	49	94	40	30
12 - L + S	SC-2-A-12	15	50	95	40	30
14 - S	SC-2-A-14	15	51	96	40	30
15 - L	SC-2-A-15	15	51,5	96,5	40	30
16 - S	SC-2-A-16	15	52	97	40	30
18 - L	SC-2-A-18	15	53	98	40	30
20 - S	SC-2-A-20	20	59	104	50	30
22 - L	SC-2-A-22	20	60	105	50	30
25 - S	SC-2-A-25	20	61,5	106,5	50	30
28 - L	SC-2-A-28	20	63	108	50	30
30 - S	SC-2-A-30	30	74	119	65	30
35 - L	SC-2-A-35	30	76,5	121,5	65	30
38 - S	SC-2-A-38	30	78	123	65	30
42 - L	SC-2-A-42	30	80	125	65	30
OD inch	Type Tube (T)	H1	H2	H3	B	SW
3/8	SC-2-T-3/8	15	49	94	40	30
1/2	SC-2-T-1/2	15	50	95	40	30
5/8	SC-2-T-5/8	15	52	97	40	30
3/4	SC-2-T-3/4	20	58,5	103,5	50	30
1	SC-2-T-1"	20	62	107	50	30
1 1/4	SC-2-T-1 1/4"	30	75	120	65	30
1 1/2	SC-2-T-1 1/2"	30	78	123	65	30
2	SC-2-T-2"	30	23	138	90	30

Other diameters (ID) inches Pipe (P) available:

1/4", 3/8", 1/2", 3/4", 1", 1 1/4", 1 1/2", 2", 2 1/2", 3"

serv-Clip -2 for mounting on non-pressurized pipes

Characteristics to order



Tube recommendations according to the manufacturer of screwing fittings

Series L	10 x 1,5 / 12 x 1,5	Series S	10 x 3,0 / 12 x 3,5
	15 x 2,0 / 18 x 2,0		14 x 4,0 / 16 x 3,0
	22 x 2,0 / 28 x 2,0		20 x 3,5 / 25 x 4,5
	35 x 2,0 / 42 x 3,0		30 x 4,0 / 38 x 5,0

Safety instructions

To ensure a correct and safe installation of the serv-Clip, please read our separate leaflet 12.B with installation instructions and a chapter on safety referring to pressure measuring clips.

The measuring connector serv-Clip is designed solely for use on technical fluid systems. The field of application covers tubelines with industrial oils such as hydraulic systems and lubricating-oil supply or cooling systems in a pressureless state when installing serv-Clip 2.

Use in air and gas tubes is forbidden.

We reserve ourselves the right to modifications which are useful for any further technical development.

Installation of the serv-Clip

Prior to installing, a check needs to be carried out to see whether the line is in the pressureless state. Afterwards check to see whether the proposed tubeline matches the outside diameter of the serv-Clip that has been selected. Tubelines that are heavily corroded or appear unsound must not be used for installing a tube measuring connector.

Furthermore, it is a precondition that the tube system should be laid and fixed in such a way that the serv-Clip is not affected by any additional burdens, stress and tensions. Tubes are to be laid so as to be adequately stable in relation to the operational conditions and they are to be equipped with fixed points.

Then the part of the tube where the installation is to take place has to be cleaned and all paint and paint remains are to be removed. The tube should be smooth, clean and dry at this point.

During the last operating, the screw-in head joint is turned in the clockwise direction as far as it will go using an open-jawed wrench (without extension). Afterwards the measuring connector is screwed out and the spring plug, needle and pressure disk removed. The measuring connector is then screwed back in and the measuring point is available for permanent use.

Tolerances of the outer diameter of the tube according to DIN 2391

tube - Ø	permitted deviation
10 mm 3/8"	± 0,10 mm
12 – 30 mm 1/2" : 5/8", 3/4", 1"	± 0,08 mm
35 – 38 mm 1 1/4"; 1 1/2"	± 0,15 mm
42 mm -/-	± 0,20 mm

Tube recommendation for steel made serv-Clips

Seamless drawn steel tubes made out of ST 35.4 material or pre-treated basic material ST 37.4 according to DIN 1630. Condition when supplied NBA (normalizing, bright annealed) with outer tube diameter tolerances according to DIN 2391, maximum hardness: HRB 75. Construction dimensions of the serv-Clip are adapted to the tubes and tolerances according to DIN 2391.

serv-Clip -2 for mounting on non-pressurized pipes

Pressure capacity

P_B 630 (9100 psi) the indications with regard to pressure and safety are based on the installation according to this data leaflet

Working temperature

Steel	-40... +120 °C
O-ring in Viton	-25... + 200 °C

The indicated temperature limits for sealing materials are guidelines as these temperature limits may be influenced considerably by the medium.

clip material	temperature range	Pressure reduction
Steel	-40... +120 °C	---

Pressure reduction

Required pressure reduction due to the material in comparison to catalogue details in the case of increased or reduced temperatures. If there are divergent definitions for permissible pressures, safety margins, temperatures and, if necessary, applicable pressure reductions due to standards, regulations or approvals for specific applications, the information provided by them is obligatory. Nominal pressures (P_N) and working pressures (P_E) detailed in the catalogue are max. permissible working pressures including pressures peaks, whereby the temperature limits and pressure reductions detailed in the table above must be taken into consideration.

Functional safety under stationary load

Types with P_N indications : 4 times

Types with P_B indications : 2.5 times

Flow rate

The flow rate measured applies to the series sc-1-A-.....and its value remains the same for all serv-Clip sizes ranging from 10

.....42 mm / 3/8" ... 1 1/2", as all types are equipped with the same

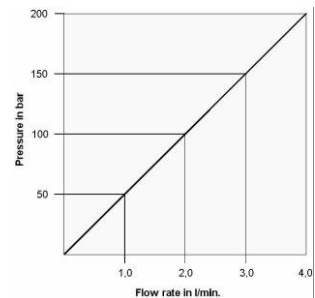
The flow rate measured applies to the series sc-1-A-.....and its value remains the same for all serv-Clip sizes ranging from 10

.....42 mm / 3/8" ... 1 1/2", as all types are equipped with the same interior parts and needle diameters.

The flow rate was measured at an oil temperature of 25 °C

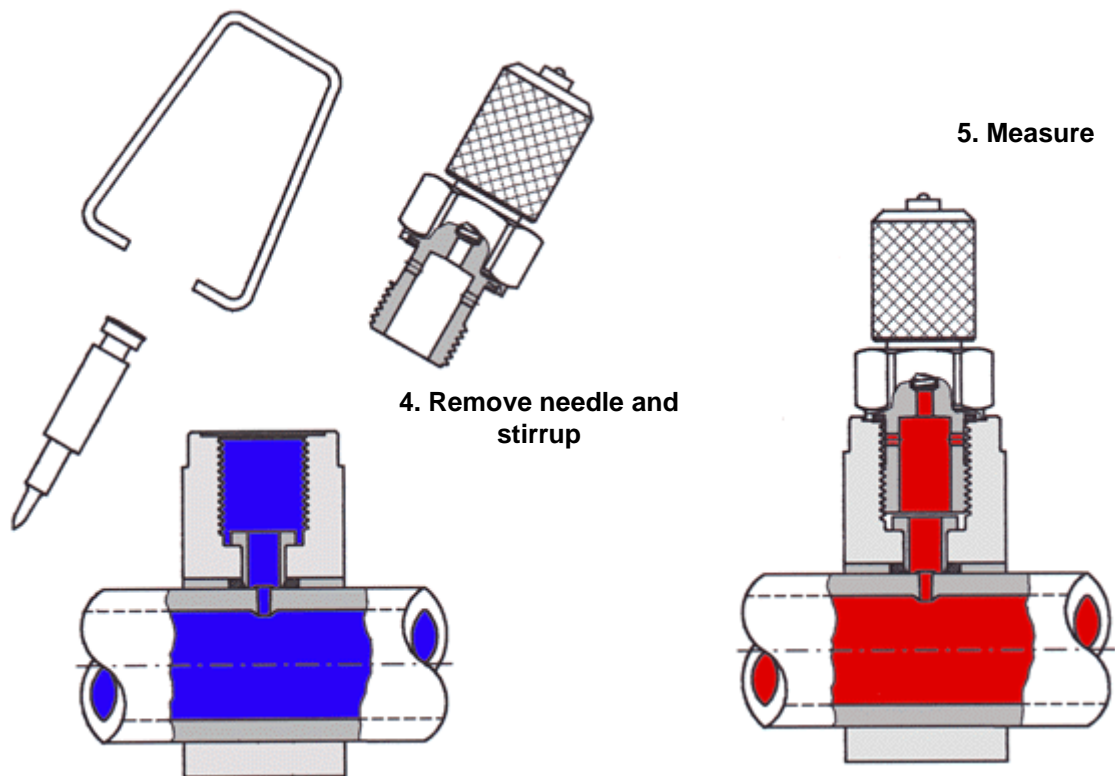
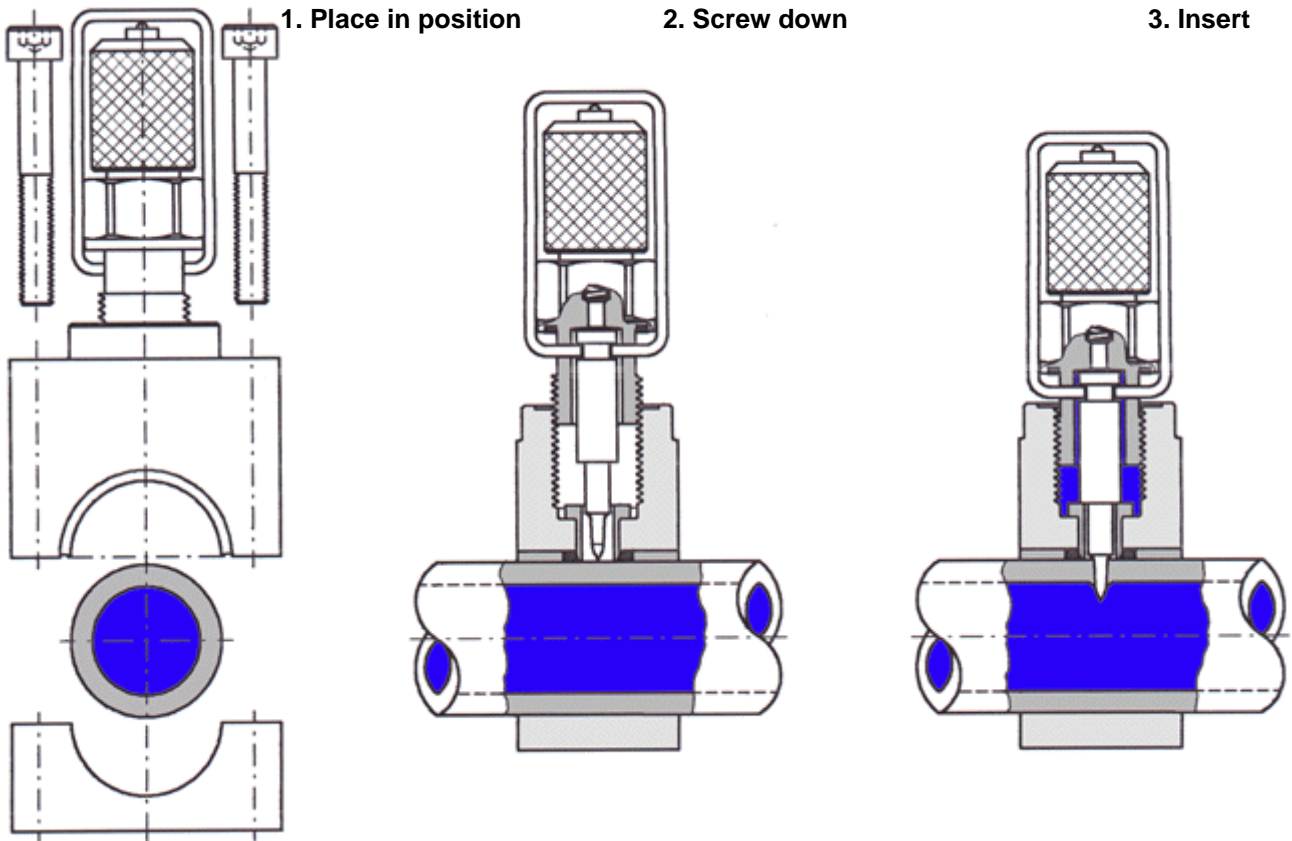
The test medium is the hydraulic oil HLP 46, which means its viscosity is 46 mm²/s at 40 °C.

The measurement was taken by means of a measuring hose of 1 meter lengths featuring a M16x2 mm connection coupling



serv-Clip -2 for mounting on non-pressurized pipes

Installation





Picture 3: Leakage sensor **fluid-Check** with **serv-Clip -2** for recognizing seal damages at cylinders of a reeling machine



Picture 4: Control of a lubrication oil line with flow rate sensors **fluid-Check** and **serv-Clip -2** at a continuous pickling line.

serv-Clip -2 for mounting on non-pressurized pipes



Picture 5: Temperature and pressure sensor with **serv-Clip -2**



Picture 6: Flow rate or leakage sensor *fluid-Check* stainless steel housing (**QS-1-B- / LS-1-B...**) and PBT housing (**QS-2-B- / LS-2-B...**) on **serv-Clip -2**



Picture 7: Installation comparison of conventional G-fitting and **serv-Clip -2**.
No need to cut open pipes